THE ROLE OF PHYSICAL THERAPISTS IN PREVENTATIVE MANAGEMENT OF CHRONIC CONDITIONS IN MISSISSIPPI: A LOOK AT DIABETES AND STROKE

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OBJECTIVES

- To examine the role of physical therapy services in preventative care in Mississippi.
- To discuss existing programs that focus on patient education to prevent and manage chronic conditions, such as diabetes, hypertension and stroke.
- To explore how physical therapy is currently included in chronic condition prevention education.
- To discuss possible ways to maximize therapeutic involvement in chronic condition prevention education.

- "Physical therapists shall advocate to reduce health disparities and health care inequities, improve access to health care services, and **address** the health, wellness, and **preventive health care needs of people.**"

APTA'S CODE OF ETHICS FOR PHYSICAL THERAPISTS: PRINCIPLE #8B

(SWISHER AND HILLER, 2010)

NATIONAL DIABETES STATISTICS

- In 2018:
- 34.2 million people of all ages , 10.5% of the population, had diabetes
- 34.1 million adults or 13% of all US adults
- 7.3 million adults over 18 years old were not aware of or did not report having diabetes.
- The percentage of adults over age 65 increased to 26.8% of adults

DIABETES STATISTICS IN MISSISSIPPI

- In 2016 Mississippi ranked first the nation in diabetes prevalence.
- At that time, 13.6% of the state's adult population was diagnosed with Type 2 diabetes.
- Diabetes accounted for 1083 deaths with many more suffering secondary complications such lower extremity amputations, end stage renal disease, blindness, heart disease and premature deaths.

DIABETES STATISTICS IN MISSISSIPPI

- Approximately 326,420 residents of MS or 14.4% of the adult population have diagnosed diabetes
- An estimated 75,000 have diabetes but do not know it
- Prediabetes affects 814,000 people in MS. This is 35.6% of the adult population
- An estimated 20,433 people in MS are diagnosed with diabetes yearly

DIRECT MEDICAL EXPENDITURES

Hospital inpatient care (40% of the direct medical costs)

Prescription medications to treat complications (30%)

Anti-diabetic agents and diabetic supplies (15%)

Physician office visits (15%)

Represents a 26% increase over a 5-year period

(2012-2017)

INDIRECT COSTS

- Medical expenditures ($5 billion)
- Increased absenteeism ($3.3 billion)
- Reduced work productivity ($26.9 billion)
- Inability to work ($37.5 billion)
- Lost productive capacity due to early mortality (19.5 billion)

MISSISSIPPI RESOURCE AGENCIES

- Diabetes Foundation of Mississippi
- The Mississippi Diabetes Prevention and Control Program
- Freedom Diabetes Prevention and Control Program
- Diabetes Coalition of Mississippi
- Mississippi Public Health Association

THE ROLE OF PT SERVICES IN PREVENTATIVE CARE EDUCATION

- Therapist are well equipped to act as health promoters.
- Every patient encounter is an opportunity for patient education regarding preventative care.
- Therapist should be mindful of patients who are at risk for developing chronic conditions.
- Our Code of Ethics obligates us to "**address** the health, wellness, and **preventive health care needs of people.**"

- Community Health Program
  - Diabetes prevention among the Asian Indian population
  - 12-week group-based lifestyle-modification program to reduce risk factors for diabetes
  - Trains students from PT, OT, nursing and nutrition programs to teach diabetes prevention
  - Focuses on populations with specific risk factors or conditions

WORDS IN ACTION

WORDS IN ACTION

Population Health Approach

- Osteoarthritis Action Alliance contributions
- Creates walking programs for persons with OA
- Students lead activities at different locations
- Create programs for a population with a common condition

WORDS IN ACTION

- Gateway to Wellness Program
  - 6-week National Multiple Sclerosis Society program
  - Education on safe incorporation of physical activity
  - DPT students design exercise programs specific to the individual

IMPACT OF PREVENTION

- National studies have shown that diabetes education saves money and reduces healthcare utilization
- A clinical trial lead by National Institutes of Health and CDC concluded that participants in lifestyle change classes were 58% less likely to develop Type 2 diabetes
- To reach persons with diabetes on a local level, the DPCP partners with the ADA to offer licensed professionals the opportunity to become Certified Diabetes Educators (CDE)
-

MAXIMIZING THERAPEUTIC INVOLVEMENT

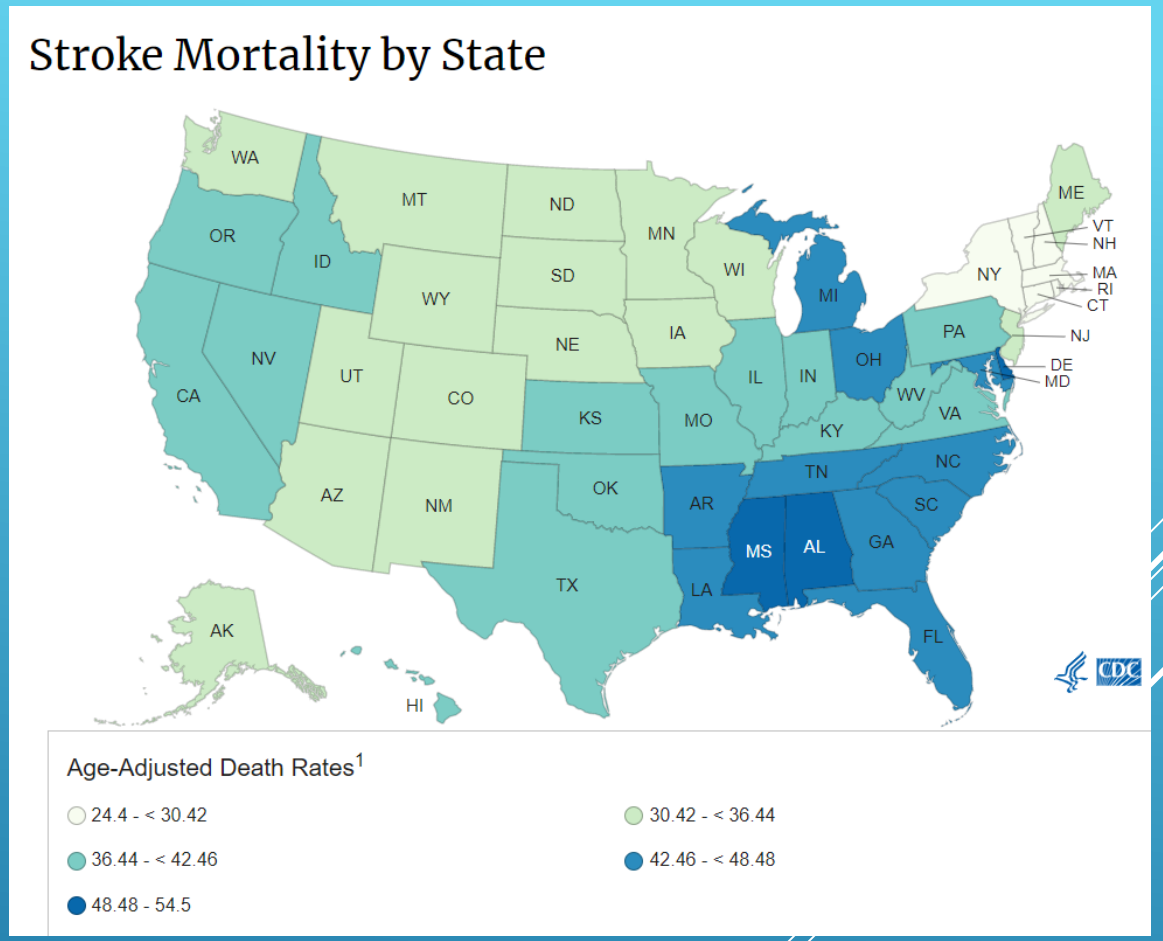
- Addressing barriers:
  - Time and resources limitations
  - Cost - reimbursement
  - Comfort level- lack of expertise

- Acute Care/Inpatient Rehab
- Outpatient
- Long Term Care
- Home Health
- Private Practice

DIABETES EDUCATION BY SETTING

STROKE IN MISSISSIPPI (2020)

- Mississippi's stroke death rate:
  - **The highest in the nation** (along with Alabama)
- Mississippi's CVD death rate
  - **The highest in the nation.**

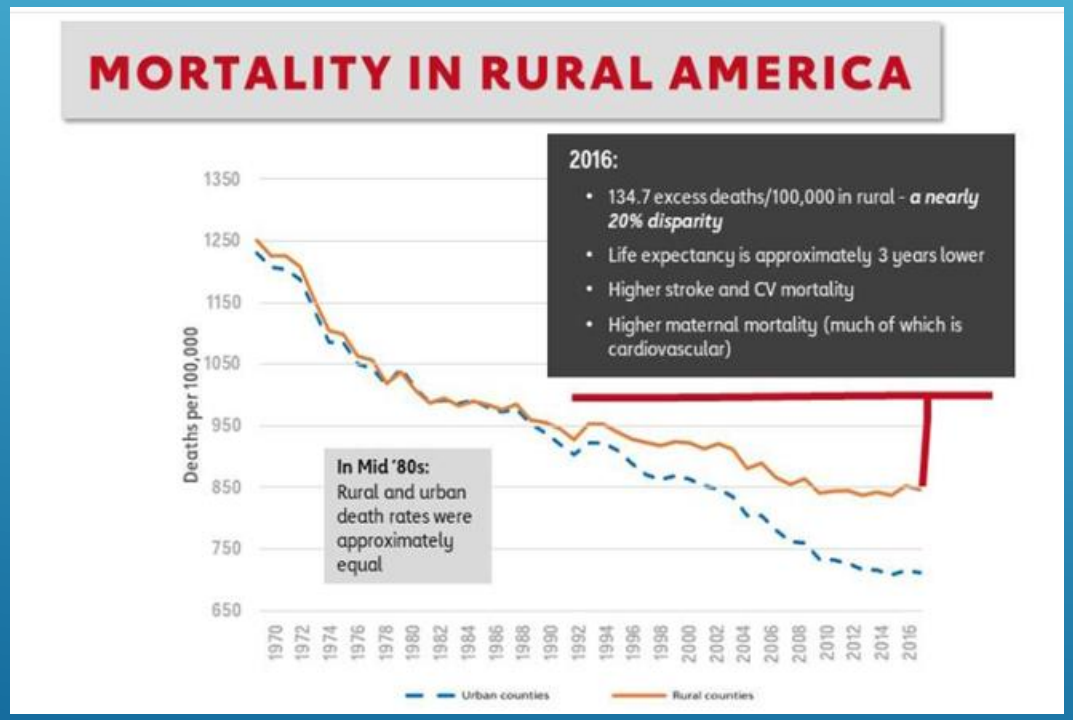


Centers for Disease Control and Prevention. "Stroke Mortality by State," 2020

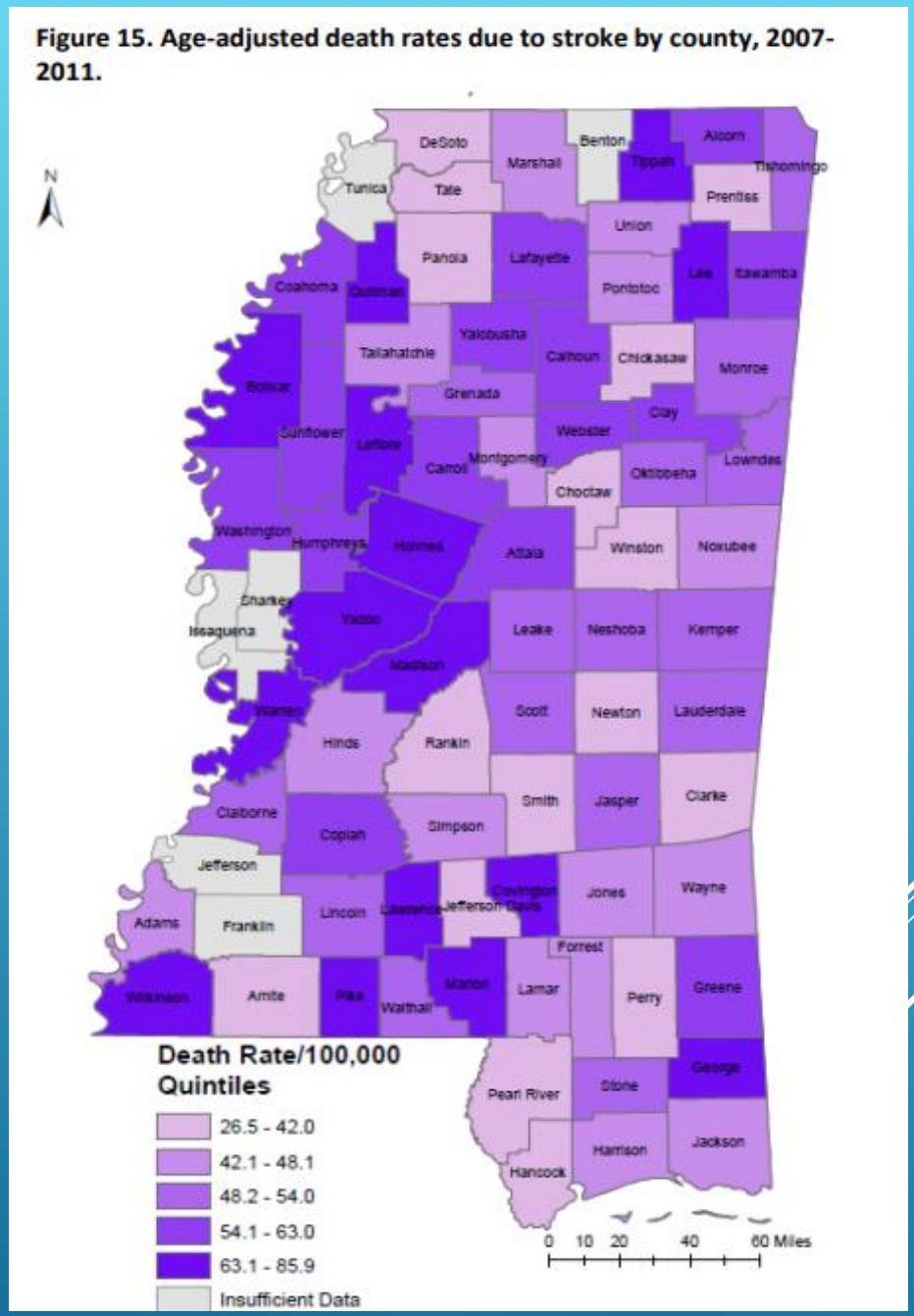
MS Leading Causes of Death, 2017	Deaths	Rate***	State Rank*	U.S. Rate**
1. Heart Disease	7,944	231.6	1st	165.0
2. Cancer	6,526	183.1	2nd	152.5
3. Chronic Lower Respiratory Disease	2,037	58.3	3rd	40.9
4. Accidents	1,738	56.3	12th	49.4
5. Stroke	1,723	51.1	2nd	37.6
6. Alzheimer's disease	1,626	49.5	1st	31.0
7. Diabetes	1,164	33.3	2nd	21.5
8. Flu/Pneumonia	782	23.0	2nd	14.3
9. Kidney Disease	741	21.7	1st	13.0
10. Septicemia	582	16.9	2nd	10.6

STROKE IN MISSISSIPPI (CDC, 2017)

- Delta Region
- **Rural** Areas
- A leading cause of **serious long-term disability**
- Mobility is reduced in more than half of stroke survivors >/65 (CDC, "Stats from the State of Mississippi," 2017).



AHA, "Mortality in Rural America," 2020



Short, 2014

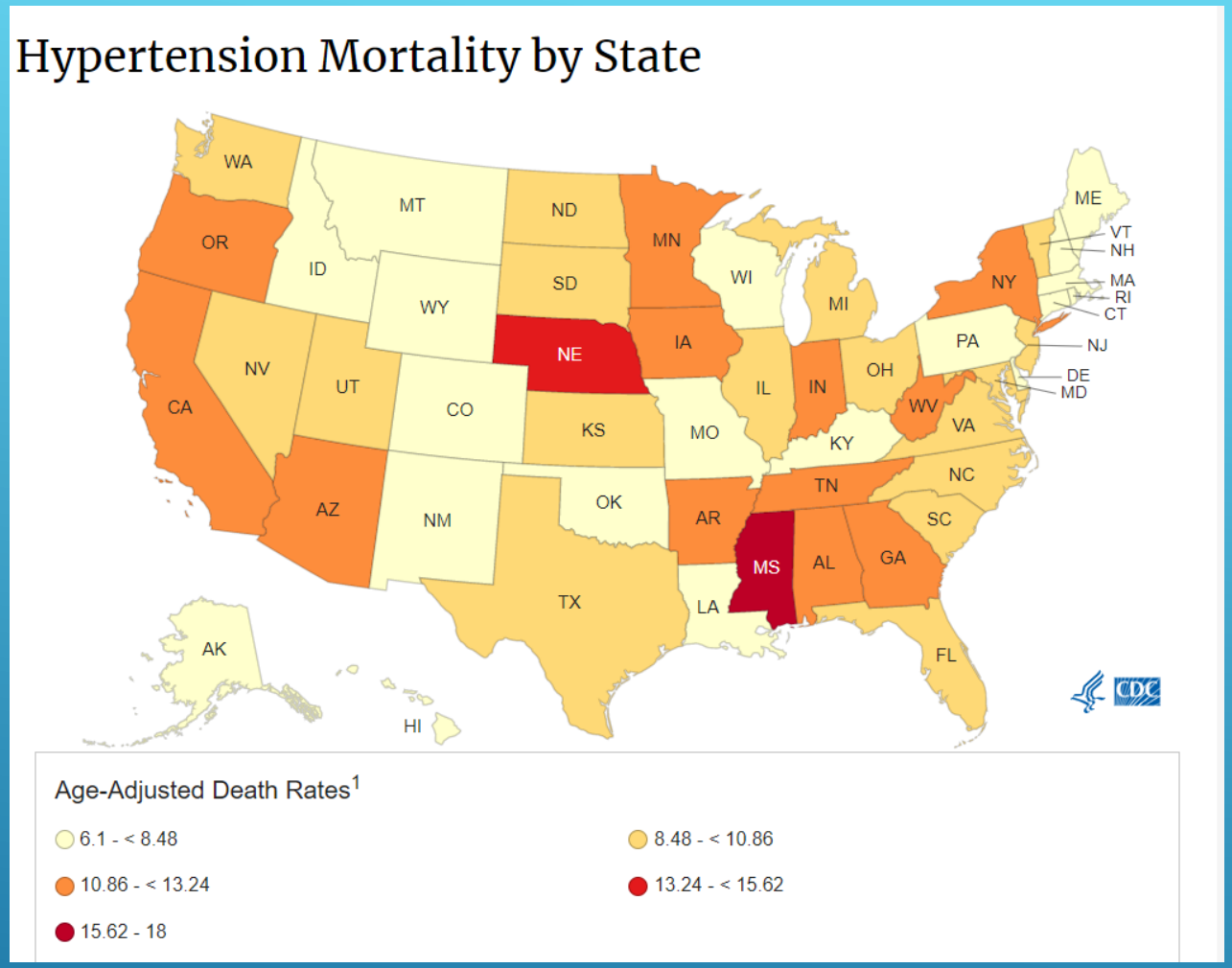
STROKE IN MISSISSIPPI

STROKE RISK FACTORS

- Modifiable Risk Factors:
  - Tobacco use
  - Alcohol consumption
  - Diet
  - High Cholesterol
  - Weight
  - **Hypertension**
  - **Physical Activity**
- Strokes are occurring at younger ages
  - Last 15 years, increases in hospitalizations for ages 18-54

(CDC, "Know Your Risk for Stroke," 2022)

- **80% of strokes are preventable**
- **Hypertension**
  - **The single most important treatable risk factor**



HYPERTENSION IN MISSISSIPPI-2020

(CDC, "Hypertension Mortality by State," 2020)

WHAT CAN BE DONE/WHAT IS BEING DONE?

- Key to Prevention
  - Weight management
  - Healthy food choices
  - Smoking cessation
  - Limit alcohol intake
  - Medication management
  - Cholesterol management
  - Diabetes control
  - **Regular physical activity**
  - **Blood pressure control**

- Federal Government:
  - Paul Coverdell National Acute Stroke Program
  - Million Hearts® Initiative
  - Mind Your Risks public education
  - Hypertension Communications Kit
    - https://www.cdc.gov/bloodpressure/communications_kit.htm

(CDC, "Prevent Stroke: What You Can Do," 2022)

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Follow @CDCHeart_Stroke and @MillionHeartsUS on Twitter to share our hypertension tweets directly on your pages.

Share hypertension posts and resources directly from Million Hearts® on Facebook.

Connect with other health care professionals and share the latest in hypertension control from the Million Hearts® LinkedIn page.

Sign up for the Million Hearts® e-Update to stay up to date on all the latest Million Hearts® news and activities.

Help Patients Take Blood Pressure Medicines as Directed

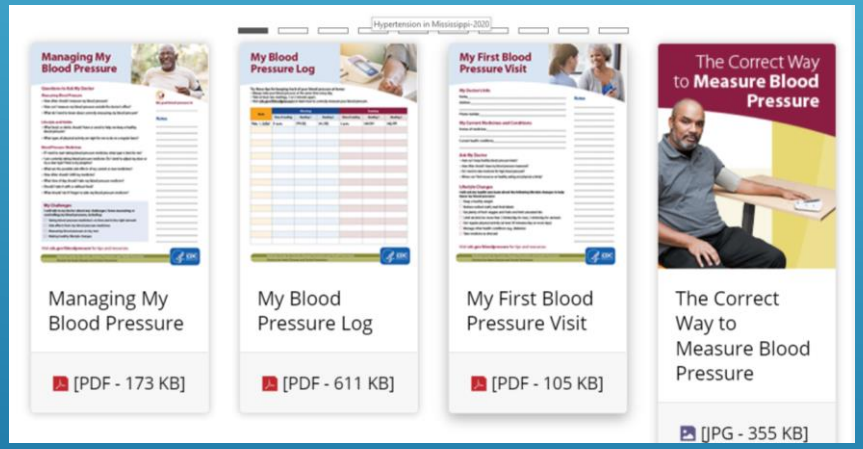
Published February 1, 2017

One major cause of ineffective blood pressure control is a lack of medication adherence, or patients not taking their medications at the right time and in the right amount. But health professionals can help! Watch this animated video to learn how.

Tips for Taking Blood Pressure Medicines As Directed

Published March 3, 2017

One major cause of ineffective blood pressure control is not taking medications at the right time and in the right amount. But patients and their loved ones can take steps to stick to the 'script! Share this animated video to learn how.



Social Media Messages

Facebook/LinkedIn | Twitter

Self-measured blood pressure monitoring, combined with regular checkups, can help people control hypertension. Download the Million Hearts [tag] action guide for public health professionals and bring blood pressure control to your community. http://bit.ly/2jF0WvX

Regularly monitoring your blood pressure, with support from your health care team, can help lower your risk for heart disease and stroke. You can check your blood pressure at the doctor's office, at a pharmacy, or even at home! Learn more from CDC [tag]. http://bit.ly/2iFB6U5

High blood pressure is often called the silent killer. You might not have symptoms, but it's a leading risk factor for heart disease and stroke. Monitoring your own blood pressure at home can help you keep your blood pressure under control. http://bit.ly/2iFB6U5

HYPERTENSION COMMUNICATIONS KIT

(CDC, Hypertension Communications Kit, 2020)

WHAT CAN BE DONE/WHAT IS BEING DONE?

- State Health Departments:
  - Increase awareness of risk factors and lifestyle changes
  - Public education campaigns, targeting prevention, by partnering with HR departments, school health programs, fire departments, faith organizations
- Health Systems
  - System-wide approaches to find patient with undiagnosed or unmanaged stroke risk factors

- Healthcare Professionals:
  - Identify and treat risk factors
  - **Education** on management of risk factors and making lifestyle changes
  - Refer patients to community resources
  - Education on ramifications of stroke

(CDC, "Preventing Stroke Deaths," 2017)

EXAMPLE FOR RURAL AREAS

- Building a Healthier West Virginia Project
  - Simple healthy cooking lessons
  - Target: BP
  - Led by volunteers
  - Implemented in local health clinics and community centers
  - https://easternstates.heart.org/a-look-at-heart-disease-in-appalachia-west-virginia/

(AHA, "A Look at Heart Disease," 2020)

HOW ABOUT MISSISSIPPI?

- Mississippi State Department of Health (MSDH, "Heart Disease," 2018)
  - Heart Disease and Stroke prevention Program
- Community Health Advisors Network (Jackson)
  - Chronic Disease Self-Management Program for people with chronic health conditions

- Mississippi Delta Health Collaborative Community Initiatives
  - Mayor's Health Councils
  - Delta Alliance for Congregational Health
    - ABCS Screening Program
  - B.R.O.T.H.E.R.S. Hypertension Screening Training

(MSDH, "Mississippi Delta Health Collaborative," 2018)

HOW ABOUT IN MISSISSIPPI?

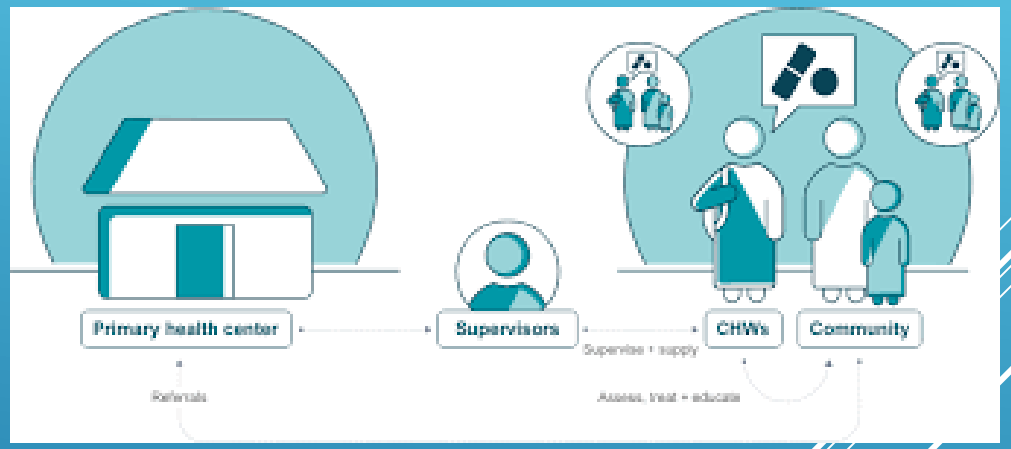
- The Mississippi Delta Health Collaborative Clinical Initiatives
  - Community Health Workers
    - Certification program
  - Medication Therapy Management program
    - Pharmacist-led

DELTA HEALTH ALLIANCE
HEALTH • EDUCATION • COMMUNITY

(MSDH, "Mississippi Delta Health Collaborative," 2018)

IMPACT OF PREVENTION ON STROKE AND CVD: BY THE EVIDENCE

- Community Health Workers
  - Significantly effective in improving chronic disease care and health outcomes (Brownstein et al., 2005)
    - Focuses:
      - CVD
      - Hypertension
      - Improved access and continuity of care



CURRENTLY ACTIVE HEALTHCARE PROVIDERS

- Physicians
  - Primary Care Providers
  - Specialists (cardiologists)
- Nursing
- Pharmacy
- Community Health Workers (trained lay people)

- What is missing here?

CURRENT ROLES OF PHYSICAL THERAPISTS

- Inherent to our daily profession (Frese et al., 2011)
  - Vital sign measurement
  - Review of Systems
  - Assessing baseline, response to exercise/activity
  - Guiding exercise prescription
  - ~22% of people are unaware that they have HTN
- Patient education:
  - Risk factors
  - Secondary prevention
  - Referral to resources
- Formal, structured roles in Mississippi…

OUR DOMAIN: IMPACT OF PHYSICAL ACTIVITY-BY THE EVIDENCE

- Physical Activity (Fini et al., 2021)
  - Reduces blood pressure
  - Reduces cholesterol
  - Supports weight management
  - Better brain health
- Physical Inactivity (Meschia et al., 2014):
  - Physically active men and women have 25-30% lower risk of stroke
    - Leisure-time
    - Occupational
    - Walking

- Physical Activity (Meschia et al., 2014)
  - Routine physical activity **prevents** stroke
  - Some is better than none
  - Evidence:
    - Reduction in risk of stroke
      - Class I; Level B Evidence
    - Healthy adults should perform
      - Moderate-vigorous intensity aerobic PA
      - >/40 min
      - 3-4 days/week

OUR DOMAIN: IMPACT OF PHYSICAL ACTIVITY

- Effects of Premorbid Physical Activity on **Stroke Severity and Post-Stroke Functioning** (Ursin et al., 2015):
  - Significant associations between pre-morbid walking habits and functional status after first-ever stroke

- Exercise for stroke prevention (Prior and Suskin 2018):
  - **Secondary Prevention** (after TIA or mild non-disabling stroke)
    - Improves exercise capacity
    - Improved stroke risk factors
    - Cardiac Rehabilitation Programs
      - Improvements in aerobic capacity, cholesterol, BMI, body weight, blood pressure

BARRIERS TO CHRONIC DISEASE PREVENTION

- Social Determinants
  - Socioeconomic Status
  - Race
  - Education Level
  - Health Literacy
  - Geography

- Current System (Brownstein et al., 2005):
  - Nonaggressive treatment by physicians
  - Lack of effective physician-patient communication
  - Lack of time
  - Lack of resources for providers

EXPANDING AND REFINING PHYSICAL THERAPY'S ROLE

- Awareness of Patient Resources to provide BEST patient education
  - For Community-Based Exercise Programs
    - MDH:
      - Stairwell Campaigns
      - Walk and Talk Meetings
      - Safe Walking Routes
      - Stretch Breaks

    - Local YMCA Programs
    - Otherwise in Mississippi…

- Examples in Neighboring States:
  - Alabama:
    - Get Healthy on the Railroad FREE Community Exercise Classes
    - Free Wellness and Health Programs offered through the Area Agency on Aging
  - Louisiana
    - 409 Fitness Studio-affordable fitness classes

EXPANDING AND REFINING PHYSICAL THERAPY'S ROLE: BY SETTING (SEVERIN ET AL., 2020)

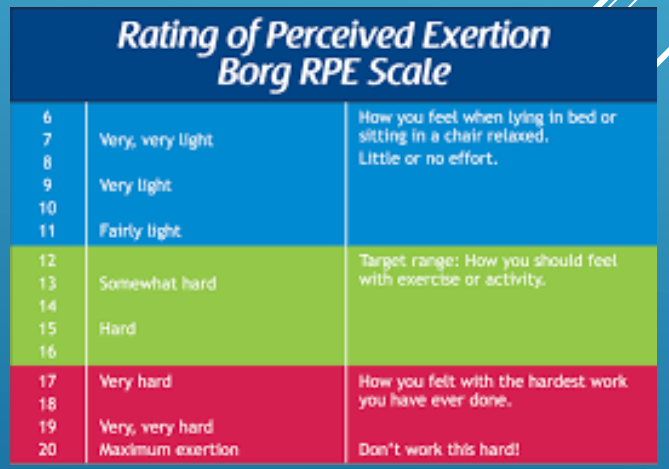
- Acute Care and Rehabilitation Settings:
  - Primarily, secondary prevention/patient education
  - Good window of opportunity to educate and initiate exercise prescription
- Outpatient Care:
  - Early Detection=Mortality Reduction
  - Screening for HTN by non-physician HCPs= improved detection rates
  - More Independent Care Model for PTs>>importance of routine bp monitoring
    - **Omission of routine screening in OP clinics is well-documented**

- We have an ETHICAL DUTY to screen
- Necessary for appropriate screening:
  - Proper equipment/cuff size selection
  - Awareness of effects of position
  - BP response to exercise:
    - DBP should not change or demonstrate slight drop
    - SBP should increase with increased workloads; failure=inadequate cardiac output; rapid increase with minimal workload=high TPR/impaired vascular function

CURRENT GUIDELINES

- **Primary Prevention** (Howard and McDonnell, 2015):
  - At least 40 minutes/day of moderate-vigorous intensity aerobic physical activity 3-4 days/week
  - Men: greater reduction of stroke risk with moderate-vigorous intensity
  - Women: greater amounts of low-intensity (ie, walking)
  - Moderate- to high-aerobic intensities
    - 60%- 80% of heart rate (HR) reserve or 70-85% maximum HR
  - Target HR (Karvonen) = [(Hrmax – HRrest) x % intensity desired] + HR rest
    - HR Max: 220-age
  - There's an app for that: HR Zones
  - Or 13-14 (out 20) or 6-8 (out of 10) of RPE

- Secondary Prevention (Fini et al., 2021)
  - 1/3 stroke survivors experience another within 5 years
  - ½ who survive 5-10 years will die of recurrent stroke or other CVD pathology
  - **Physical inactivity=the strongest independent predictor of recurrent stroke**
  - American Stroke Association: 20-60 minutes of aerobic exercise 3-5 days/week
  - **Ethical Duty**



HOW WE EDUCATE IS KEY (SALIMI ET AL., 2016)

- Motivational Interviewing
  - Facilitating behavioral changes
    - Empowering motivation and commitment through exploration (autonomous motivation)
    - Eliminating uncertainties
    - Client-centered
    - Why might change be important → development of a plan
  - Proved effectiveness for
    - Diabetes management
    - Hypertension management
    - Increasing physical activity

- How
  - Express Empathy
  - Develop Discrepancy
  - Roll with Resistance
  - Support Self-Efficacy

TIPS AND TAKE-HOMES (FINI ET AL., 2021)

- All HCPs should know current guidelines on physical activity and when to refer to those with expertise (ie, physical therapists)
- "Guidance" is inadequate
- Good programs exist… sustainability and PT involvement appear to be the problems
- Incorporating the "Participation" domain is crucial
  - Individual approach—preferences, barriers, facilitators to physical activity

APTA HEALTH PROMOTION AND WELLNESS COUNCIL (APTA, 2020)

- Community of PTs, PTAs, and students with a special interest in "incorporating **prevention**, health promotion, and wellness as an **integral** aspect of physical therapist practice, as well as in **promoting and advocating for healthy lifestyles** to reduce the burden of **disease** and **disability** on individuals and society.

- Join the council and receive email alerts from the council's online community (https://www.apta.org/apta-and-you/online-forms/CPHPWAffiliateOrgs
- Connecting people and knowledge to develop and disseminate best practices in these areas.
- Community on APTA Hub

WRAP UP (O'SULLIVAN ET AL., 2019)

- PTs and PTAs have
  - Knowledge
  - Skill set
  - Opportunity
  - Ethical duty
- "Knowledge is of no value unless you put it into practice." –Anton Chekhov

- There is a need to better define our role
- In the meantime,…we can (and should) still identify and explore our daily opportunities for chronic disease management and prevention.

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